East Waterway OU

Anthropogenic Background Meeting #1 Meeting Notes

Participants: EPA, East Waterway Group (Port of Seattle, City of Seattle, and King County), Washington Department of Ecology, Muckleshoot Tribe, Suquamish Tribe

September 9, 11 am - 1 pm

Meeting Materials

Sent via email from Dan Berlin on 9/3/2020

- AB Meetings Approach (Meeting Series Schedule; PDF)
- AB Meeting 1 Agenda (PDF)
- AB Problem Definition and Goals (Word document)
- AB Meeting 1 Presentation (PDF)

Attendees

EPA

- Ravi Sanga
- Kira Lynch
- Silvina Fonseca
- Elizabeth Allen
- Erika Hoffman
- Sean Sheldrake
- Elly Hale
- Karl Gustavson
- Shawn Blocker
- Christine Poore

USACE (on behalf of EPA)

- Bill Gardiner
- Kayla Patten

Ecology

- Jessica Huybregts
- Jing Liu
- Rick Thomas
- Chance Asher

Suquamish

- Alison O'Sullivan
- Denise Taylor

Muckleshoot

- Glen St. Amant

East Waterway Group (EWG)

- Brick Spangler (Port of Seattle)
- Joanna Florer (Port of Seattle)
- Jeff Stern (King County)
- Debra Williston (King County)
- Allison Crowley (City of Seattle)
- Pete Rude (City of Seattle)
- Merv Coover (ERM on behalf of the City)
- Dan Berlin (Anchor QEA on behalf of EWG)
- Greg Brunkhorst (Anchor QEA on behalf of EWG)

Meeting Notes

Dan Berlin: roll call; the purpose of this series of meetings is to see if enough information exists to develop anthropogenic background.
Ravi Sanga: EPA appreciates the effort of the EWG … [phone issue; drops off].
Kira Lynch: I would like to reiterate that EPA appreciates the efforts of EWG and in laying out goals of these meetings in a sequential fashion.
Dan: this series of meetings is intended to be a collaborative process and to decide if we have enough available data to determine anthropogenic background.
Ravi: […returning …] EPA has some problems with laterals and sediment left behind but let's go through the meeting materials. EPA will not make any decisions today.
Dan: the goal of the meeting is to agree on the problem definition and the goals of the evaluation.
[Dan reviews the slides in sequential order]
Slides 2 and 3 present today's agenda and an overview of the meeting series.
Slides 4 through 7 present the problem definition summarized from the Word document that was sent with the meeting materials.
Slide 8 presents the four goals of the evaluation, also summarized from the Word document that was sent with the meeting materials.
I would like to pause and see if there are any questions or comments.
Kira: this is consistent with our goals and the layout makes sense to me
Dan: now I will turn to the slides that summarize the conceptual site model (CSM) of the EW.
[speaking in bullet points]
Slide 9 CSM

- There are 4 sources of sediment to the EW: upstream Green River sediment, upstream lateral and bed loads from the Lower Duwamish Waterway, and East Waterway laterals loads.
- The vast majority of sediment (about 99%) comes from the Green River, with about 0.3% coming from the EW laterals and LDW bed and laterals making up about 0.8%.
- Sediment loads from Elliott Bay are assumed to be minimal but should be reflective of Green River inputs as the dominant input to the Bay.
- Atmospheric deposition is another input, which is captured in deposition of the lateral input watersheds indirectly, but direct atmospheric deposition to the EW is comparatively small and was not quantified in the FS.
- More than 99% of material entering the EW is fine-grained sediment (silts and clays); this is different than sediment entering the LDW, which is 67% fine-grained and 33% sand.
- The EW is an active waterway with sediment mixing from vessels – Terminal 18, Terminal 25 and Terminal 30 – are all terminals with about 100 foot over-water piers over riprap slopes with sediment mixing from vessels an important part of the CSM.

Slide 10 CSM

- The average net sedimentation rate is about 1.2 cm/year based on geochron cores collected for the Supplemental Remedial Investigation (SRI).
- 20% to 33% of sediment that enters the EW deposits within the EW based on the FS evaluation. This is a slightly lower value than presented in the SRI, which was 25 to 60%.
- 67% - 76% of the laterals loads deposit in the EW based on Particulate Tracking Modeling
- Most of the EW can experience approximately 2 feet of sediment mixing from vessels, with up to 4 feet along the north part of Terminal 18

Elly Hale: If there is resuspension of fines, could there be resuspension and movement back up into the LDW?

Dan: EW is a marine system with freshwater outflow and bi-directional flow. We calculated net deposition, and didn't distinguish between what portion is deposited and potentially resuspended.

Debra Williston: the sill creates a boundary between the EW and the LDW, which limits flow towards the LDW

Jeff Stern: we never did look at the backward transport mechanism – there is a component of the tide that moves up from the EW, but not as much as the WW

Elly: what is the elevation difference between the sill and the junction reach

Greg Brunkhorst: on the south side of the sill in EW, then elevation is about -20 ft MLLW and the sill is about -10 ft MLLW

Elly: how can sediments consolidate with so much prop wash?

Dan: The process of sediment consolidation is due to the build-up of additional sediment and burial of deeper sediments. Propwash is an episodic and localized process depending on berthing and vessel maneuvering.

Kira: don't want to get too hung up on prop wash and consolidation – it is important to the remedy, but not to anthropogenic background

Dan: OK

Slide 11 is intended to clarify what is part of AB.

All of these factors [Green River, LDW Laterals, LDW Bed, EW Laterals, and sediment remaining in the EW following cleanup next to structures or due to dredge residuals] affect what the long-term concentrations will be in the EW. I would like to ask Kira – what can and can't be included in AB?

Kira: You have already defined what can and can't be included in the problem definition slide. We cannot include any contribution of site sediments that is not part of the CERCLA remedy. Sediment under residuals management cover will not be part of AB. I understand these sediments will have an impact on the long-term concentration, but they are not part of AB.

Ravi: also laterals cannot be part of AB.

Silvina: residuals they are part of what the site can achieve in the long term, but are not part of AB

Dan: Kira is talking about the processes in the righthand box on Slide 11, which cannot be included in AB, and Ravi is talking about laterals that are outside the box on Slide 11. Let's move on and return to Ravi's comment later regarding whether laterals can be included in AB.

Slide 12 presents what we did in the FS to develop a mass-balance approach to estimating the weighted concentration of incoming solids. This information is presented in Table 5-5 of the FS. We are showing this to review the process for calculating incoming solids concentrations weighted by the amount of solids. So we are focusing on solids in this table and not on the concentration data, which is what was presented in the FS with the available data at the time. Additional data is available now, which we will review at the next meeting. These concentrations are not intended to be a proposal for anthropogenic background. Across the top, the % sediment mass loading are the percentages that are depositing in the EW from the various sources. The numbers presented in this table represent future conditions following source control, as presented in the FS. We can discuss whether current conditions or future conditions would be best to use for AB. Based on our FS work, the weighted average approach seems like the best way to calculate an AB.

Ravi: Clarification: does this include source control?

Dan: yes, this is for the future case following further control of lateral inputs.

Debra: I can directly answer – the future adjustment was for East Waterway laterals only. The LDW laterals were held constant.

Silvina: are these predictions based on modeling? How were the predictions made?

Debra: these are post CSO – control conditions. We have 3 CSOs in the EW. CSO control is defined as one untreated release per year on average. One CSO will control sources with additional storage capacity, and two will include wet weather treatment. In addition, there are storm drains that have undergone stormwater treatment under level 3 corrective action; other storm drains assumed source tracing to the level of the CSL. Does that help?

Silvina: What was the Green River dataset based on?

Dan: The Green River dataset was based on an evaluation in the FS of the data that best represented the incoming concentrations into the EW. We will review in the next meeting all Green River data available, but we used suspended solids data to represent some incoming concentrations in the FS.
Silvina: were Green River concentrations changed for the future case?
Dan: No they were not changed for the future case.
Ravi: does this represent a high storm event?
Debra: this represents average conditions over time. A high-flow event will proportion out to similar loads.
Ravi: my concern is this would under-represent a high-flow event
Kira: to recap – you are not looking for input on the concentrations at this time, but you are asking if the method of calculation can be the same?
Dan: yes, do you have thoughts?
Elizabeth Allen: I do have thoughts. What effect would concentration differentials have? CSOs are a source control issue. Any time that we spend on laterals is not productive.
Sean Sheldrake: if the goal is to predict when you are going to achieve AB, there are a number of ways to do that over time, such as a decay rate.
Debra: The impact of arsenic and dioxin/furan [laterals and LDW bed] is negligible, but PCBs are influencing the final concentrations. These are general inputs that come from the urban drainage basin. We can't bring those to zero. I'm looking for clarification.
Elizabeth: Looking at 42 compared to 45 isn't that different, especially when considering relative percent difference of analytical data. While diffuse urban inputs are important, direct discharges to EW are a source and a source control issue.
Sean: in terms of the timeline and the point of diminishing returns in source control, then the predominating influence will be the Green once sources have been controlled.
Jeff: urban input results in about 10% increase for PCBs. It can be argued that it is within the range of the datasets, but 10% change is actually a significant difference. The same concentrations discharge from other urban areas into Elliott Bay.
Karl Gustavson: 3 ppb isn't 10%, but if you received these from a lab, they would be accepted as the same. It is simpler than what constitutes a source in Superfund rather than the time it takes to track down the data. How much time do we want to spend discussing lateral inputs?
Debra: I understand your argument with analytical variability. With AB, could there be an acknowledgement that maybe there are other sources? If comparing the 95UCL and comparing to this number, and we're off by a few ppb, is this going to be a problem when considering remedy performance?
Elizabeth: Urban inputs are supposed to be included. Lateral inputs are included in AB. But I think we are cutting this conversation far too fine. Is there an effect of urban inputs that would be part of AB? Maybe we could say we acknowledge that that is happening. Sean's comment about timing is

well taken. Eventually you will get there. We have spent more time on the difference between 42 vs. 45 than we should.
Sean: we would like to not argue over lateral inputs as part of this process.
Silvina: Moving forward, what is the basis for some of these predictions? The goal is not to determine what is equivalent to AB and what is not regarding percent differences. We just need to understand the role that each input plays. We are spending too much time on discussion of laterals. This doesn't need to be answered and we need to come up with a number.
Dan: the next meeting is on the Green River data, I don't know if you are saying we don't need to have our scheduled meeting on the lateral inputs after that?
Silvina: No, I'm not saying that, I am just saying we need to move on to the next slide.
Kira: the way you have it laid out is good. It's probably worthwhile having the discussion about other inputs besides the Green River. These other inputs will have very minor impacts – we can go through to confirm that for us. EPA agrees with the mass loading estimates, as the majority of the loading comes from the Green River.
Dan: in the interest of moving on, the next slide is the last slide and just presents where the information presented today can be found in the FS. Returning to the goals of the meeting:
We have achieved goal #1 - EPA is comfortable with the mass loading approach.
Rick Thomas: I would like to bring up that one important input is the groundwater contribution of arsenic to sediments, which is important in the LDW. Also, I agree with Debra that PCBs are ubiquitous what I can't answer is what that value is to distinguish when PCBs are ubiquitous vs. a source.
Dan: we estimated solids that flow into the EW from the LDW, so groundwater discharge with arsenic should be captured on solids moving from LDW to EW. Any comments from Suquamish or Muckleshoot?
Alison O'Sullivan: no comment right now
Denise Taylor: no comment right now
Glen St. Amant: no comment right now
Dan: based on this meeting, we don't need Meeting #2 to continue discussions on the CSM. In meeting #3 we will discuss available concentration data for the Green River.
Kira: that sounds good
Debra: can you tell us what kind of information you are looking for us to present?
Sean: for the Green River meeting, please include study design information, spatial bias design of the trap, bed load, whether these data sources have bias, and how the data could be extrapolated
Debra: we can give you sample numbers and flow characteristics
Silvina: May have some of this information, all in one place, such as # of locations, relative locations of the samples relative to LDW and EW, a figure or where the sampling is located, and identify sampling locations for the type of samples taken
Ravi: I'd like to see the number of samples per study and where they are

Debra: water and suspended solids are all from the same locations, so that will be easy, but bedded sediment are from different locations

Elizabeth: I'm interested in your assessment of why one dataset is more relevant to EW AB than another.

Alison: I am frustrated that we didn't have this discussion earlier. I feel it was disingenuous for EWG to approach EPA HQ and not include the working group. Clearly you have an agenda and are back-calculating to a number. The Suquamish made concessions regarding consumption rates in the SRI/FS process based on natural background cleanup levels, and that will be disrupted. There is another data set that needs to be calculated with natural background with respect to Suquamish fish consumption. This will require much more discussion.

Ravi: lets take this off line

Dan: we will cancel the meeting scheduled for the 15th and submit meeting material prior to the next meeting that is scheduled for the 24th

Kira: thank you. I feel we need to respond to Alison. No one in this group has pre-calculated a value or discussed any kind of target; we are just starting this process, and it has nothing to do with the risk assessment or consumption rates. It is recognized that natural background and AB are significantly higher than risk based values.

Alison: the Suquamish made concessions based on natural background. I agree to disagree.

Kira: there have been no discussions with HQ or EPA in a value that we are trying to justify.

Brick: in terms of EWG reaching out to HQ – it was about natural background not being achievable.

Allison: I understand, I disagree that this does not involve Suquamish consumption numbers – it does.

Kira: Thanks for putting this together.

Ravi – I second Kira – thanks for putting this together.